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Calls for an imaginative and productive approach to problems in research on the retention and withdrawal of students—an approach focused on discovering new knowledge and developing techniques for controlling the situation. Reviews past and existing institutional research on student retention and withdrawal: Census-type studies, autopsy-type studies, those having a case-study approach, and prediction studies. Discusses several exploratory studies of attitudes, values, and beliefs as leads for further research. Identifies research needed by individual colleges and research needed on an interinstitutional basis.

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INSTITUTIONAL RESEARCH ON RETENTION AND WITHDRAWAL

DOROTHY M. KNOELL
Consultant in State College Curricula
California Department of Education
Sacramento, California

A. INTRODUCTION

Two conclusions can be drawn from a review of the existing institutional research on retention and withdrawal of college students:

1. The bulk of the research is unimaginative and unproductive, in terms of discovering new knowledge or attempting to develop techniques for controlling the situation;

2. A serious problem exists with respect to rates of retention and withdrawal, which is in some ways more critical than that associated with selection, in view of our losses of large numbers of competent students now selected for admission and the competition for scarce places in the freshman classes across the country.

In attempting to review and collate the existing research in this field, some delimitation of the topic seemed desirable. First, there was no attempt to study academic standards for probation and dismissal, or the rates produced by such standards, except as they were reported incidentally in a few of the studies examined. (Failure of the researchers to separate voluntary withdrawals and dismissals in their various investigations appears to be one fairly serious limitation in the current research.) Second, scant attention is given to retention and withdrawal in graduate and professional education. While useful leads for new investigations are found in studies of attrition in professional schools, it appears that the problems of remediation and program planning are too different to warrant detailed consideration of these studies. A relatively heavy emphasis in this review of research has been put upon problems of freshman attrition, in contrast with attrition at the upper division level. In California, with the tri-partite system of higher education of junior colleges, state colleges, and the university, where a considerable segment of the lower division students are educated in junior colleges, attrition at the junior level after transfer is large. However, since a majority of the studies in institutions in other states assume normal progress in one institution from the freshman through the senior year to graduation, attention has been given to retention and withdrawal after transfer only in connection with the California studies. Finally, studies of attrition between high school

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and college, among able high school graduates who have the ability to profit from college work, have not been included in the present review. A number of good studies are now in progress or have recently been completed, which are readily available to those concerned with this problem. The higher priority in the current review seemed to belong to the problem of salvaging the able students now admitted to our freshman classes.

The approach which has been used in reviewing past and current research is an analysis of methodology of research on retention and withdrawal, rather than content or findings. No attempt was made to perform an exhaustive analysis of all studies in this area. While hundreds (if not thousands) of individual institutional studies could be cited, the increase in scope or depth of knowledge gained beyond reviewing a limited sample of such studies is very small. The following general categories of studies in this field appeared useful in reviewing the existing research:

1. census-type studies: the largest number of studies performed to date involve following an entering freshman class through a number of semesters of work (frequently to graduation) in order to establish rates for attrition by semester and percentage of graduates after eight or fewer semesters. These studies serve primarily to establish a baseline or norm for the particular institution, against which results of other kinds of studies may be evaluated.

2. autopsy-type studies: these studies, which are frequently part of the census studies, attempt to find out why students withdraw before graduation, by asking students to fill out questionnaires at the time of withdrawal, by requiring exit interviews as part of the withdrawal process, and by comparing characteristics of withdrawal and graduating groups.

3. case-study approach: many institutions have performed long-range follow-up studies of students identified as potential withdrawals at the time of admission, usually because of weakness in preparation or marginal ability. The studies may be classified only loosely as research, since they serve primarily to produce leads for more formal investigations.

4. prediction studies: admissions variables are related to various criteria related to success and failure, including dismissal and voluntary withdrawal. The various types of criterion variables employed include the usual continuum of success-failure (grade-point average for the first semester, first year, or the cumulative grade-point average for the time the student is in school), graduation vs. non-graduation, scholarship standing, and withdrawal for various reasons.

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The body of the report is organized in three major sections: Methodology, with some firm findings from the various types of existing studies; promising leads from exploratory studies which have not yet produced firm findings; and studies that should be conducted by individual institutions and by cooperating institutions.

B. REVIEW OF EXISTING RESEARCH

1. Census-type studies. Robert Iffert's monumental study of Retention and Withdrawal of College Students (1958) serves as an excellent example of the census-type study, performed in a nation-wide sample of 147 institutions (public and private, church-related and independent, junior college and four-year, general liberal arts and specialized), with more than 12,000 students (full-time freshmen starting in the same semester, who were single, non-foreign, and not enrolled under provisions for veterans benefits). The census-type data include percentages of students who persist one, two, three, etc., through eight semesters, with and without graduation at the end of four years, with attention to transfer and scholarship status at the time of withdrawal, by type of control (public vs. private), type of institution (liberal arts, teachers college, etc.), and sex. The major normative findings from the Iffert study are the following:

1. Fewer than 40 per cent of the students graduate in four years from the institution of first registration. (No attempt was made to follow these students beyond eight semesters to find out how many graduated within a reasonable time beyond the normal four years.)

2. Perhaps as many as 60 per cent of the entering freshmen graduate eventually from college, after one or more transfers to other institutions, temporary withdrawals from the institution of first registration, or while carrying part-time course loads. Figures are estimates beyond the initial 40 per cent in the first finding, based in part on self-report by the students.

3. Public and private college rates of graduation differ significantly. Only 33 per cent of the entering freshmen in public institutions graduate in four years, compared with 48 per cent in private institutions. Church-related institutions have a graduation rate of 44 per cent, while non-church related colleges graduated half of the entering freshmen in four years.

4. Rates for the various types of institutions differ significantly. Teachers' colleges graduated the smallest percentage, with only 36 per cent of the entering freshmen completing their programs after four years; universities, 39 per cent; liberal arts colleges, 41 per cent; and technical institutions, 43 per cent.

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5. No significant differences in rates of graduation for men and women were found, although the rate for women was slightly higher. Men and women were represented in the total study sample in the ratio of 59 per cent men and 41 per cent women. The ratios and the graduation rates differed with type of institutions, however, and significant differences in rates of graduation for men and women were obtained for teachers colleges and technical institutions, both favoring women.

6. Attrition for all colleges was heaviest during the freshman year. A loss of 27 per cent was reported during or at the end of the freshman year, compared with a total loss of 28 per cent for the next three years combined. In the freshman year, the first-semester loss was 10.7 per cent; the second-semester loss, 16.6 per cent. However, the rate of attrition for men was about equal for the first two semesters, while the attrition rate among women was far heavier at the end of the second semester than at the end of the first.

A large number of institutions in the WICHE member states reported studies of retention and withdrawal in the survey of institutional research published last year (Sprague, 1959). Among them are Arizona State University, the University of Arizona; Citrus Junior College, City College of San Francisco, Los Angeles Valley Junior College, Occidental College, Riverside College (all California institutions); the University of Colorado; Ricks College in Idaho; the Montana School of Mines; Lewis and Clark College (Oregon); Utah State University; and Whitman College (Washington). In addition, the University of California and the various State Colleges have undertaken census-type studies, in connection with the recent Master Plan Survey of Higher Education in California and subsequently in anticipation of changes in admission requirements. Also, the various junior colleges are undertaking systematic studies of retention and withdrawal in connection with Western College Association accreditation.

While the Iffert study is the major systematic investigation of retention and withdrawal of its kind, it has the serious limitation of having sampled the entering class of 1950, which was enrolled during the Korean War and immediately thereafter. The model is certainly a good one, but the question arises as to whether or not the normative data produced by this study are reliable over time. In order to test the validity of the findings, in terms of their generality, several studies of retention and withdrawal performed by individual institutions were reviewed.

University of Iowa study (State University of Iowa, 1959)--An eight-semester follow-up study of the freshman class entering the University of Iowa in 1953 showed that 32 per cent of the freshman were graduated within eight semesters of initial registration; 42 per cent of the freshmen had withdrawn during the four-year period; 12 per cent

could be classified as potential graduates, at the University or elsewhere; and the remaining 13 per cent were not accounted for. Three-fourths of the withdrawals occurred before the fall of the sophomore year, 85 per cent before the junior year. Twenty-two per cent of the freshmen withdrew during or immediately after completing the first year; total attrition for the remaining three years was thus about equal to that for the first year. In summary, the net mortality for the 1953 entering class, i.e., the percentage which failed to graduate from any college in a reasonable amount of time, was estimated to be 37 per cent. The gross loss to the University of Iowa, however, was judged to be 49 per cent. The percentage of students who did not make normal progress toward the baccalaureate degree was found to be 68.

University of Wisconsin studies (Lins and Pitt, 1953; Little, 1959 (b))--A typical follow-up study was performed for the freshmen entering the University of Wisconsin in 1948. More recently, a follow-up was made of all students in the top one-quarter of the 1957 high school graduating classes in Wisconsin who entered college in the fall of that year. The following results were obtained from the two studies:

1. Of the 1948 entering class at the University of Wisconsin, 30 per cent graduated in four years or less from the University, including 26 per cent of the original male group and 37 per cent of the entering female group. Of the total group, 28 per cent stayed in school one year or less, 42 per cent failed to reach the junior year, and 8.5 per cent were registered in the eighth semester but failed to graduate with the class. Sizeable percentages of the withdrawals re-enrolled at a later date at the University or transferred to other institutions.

2. A special study of the top quarter of the Wisconsin high school graduates showed that 63 per cent attended college the following year (77 per cent of the men and 54 per cent of the women). One-third of the college students enrolled in private institutions; 23 per cent attended out-of-state colleges. Nearly half of the freshmen attending college in Wisconsin registered initially at the University. A four-semester follow-up of this selected group showed an overall loss of 17 per cent, including transfers between institutions. Attrition in public institutions was greater than that in private colleges; attrition in Wisconsin institutions was greater than in out-of-state colleges. Attrition for men and women in the total group was similar, although the heaviest loss for a single group was among the male students at the University of Wisconsin, with a net percentage of 23 per cent discontinuing (32 per cent, if students who discontinued and re-entered are counted). A gross loss of 22 per cent for both sexes was obtained for the University for the first two years, or a net loss of 18 per cent when transfers to other colleges were accounted for.

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University of California study (Master Plan Survey Team, 1960)-- Studies have shown that approximately 15 per cent of the California high school graduates are eligible for freshman admission to the University of California, on the basis of grades in a required high school subject pattern. A comparison of attrition at the University with rates for state universities having either no admission standards or considerably less selective standards is of some interest. The following general findings were reported by the University, based on a number of studies of the various campuses and entering classes:

1. Forty-five per cent of the freshmen withdraw from the campus of original registration before completing eight semesters; 35 per cent of the freshmen earn the baccalaureate degree by the end of the eighth semester. From 10 to 15 per cent withdraw and re-enter the University, or transfer between campuses.

2. Attrition among women is from 10 to 15 per cent greater than attrition among men. The attrition rates for the various campuses differ (apparently systematically, although further studies are needed to establish reliable differences).

3. Attrition among junior college transfers is considerably higher than attrition experienced by "native" juniors and seniors. From 28 to 57 per cent of the transfers earn the baccalaureate degree within four semesters, the percentage depending upon the students' eligibility for University admission at the time of graduation from high school. An estimated 60 to 76 per cent of the transfers earn their degrees at the University eventually, the percentage again depending upon eligibility status as freshmen.

California State College studies* -- Somewhat less than one-half of the high school graduates in California are eligible for freshman admission to the 14 State Colleges. In the fall of 1958, nearly 13,000 students were classified as freshmen in the State Colleges. Of this group, only 57 per cent were admitted from the prior year's high school graduating class. Nearly one-fourth were "old" freshmen who had not yet completed 30 units of work, while 11 per cent had transferred with less than 30 units from another institution. The more than 7,000 new, first-time freshmen constitute the population for the long-range follow-up study now under way. Some of the generalized findings from this and earlier studies performed by particular colleges are the following:

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* Selected statistics from a state-wide study of retention and withdrawal now in progress for freshmen entering in the fall of 1958.

1. Approximately one-fourth of the entering freshmen withdraw or are disqualified during or at the end of the freshman year, not including voluntary withdrawals at the end of the first year. Attrition is divided about evenly between voluntary withdrawals and dismissals for academic reasons, although voluntary withdrawals following the spring semester would change this balance. A significantly larger percentage of men than women are dismissed, while voluntary withdrawals during the year are about equal. Other analyses show that women tend to withdraw in good academic standing at the end of their first year, with the result that the total freshman attrition rate for women is greater than that for men.

2. Male freshmen constitute 55.7 per cent of the total entering class in all of the state colleges. However, by the senior year, the percentage of males has increased to 68.7 per cent. Analyses of transfer enrollments from junior colleges have shown that the transfer group contains a significantly higher percentage of males than females.

3. One four-year follow-up study showed that only 26 per cent of the entering freshmen survived to the senior year in college, to participate in the fall semester in an evaluation study.

4. The new transfer group in the fall of 1958 was 10 per cent larger than the new first-time freshman group accepted that fall, even when "old" high school graduates are included. Transfer students in the graduating class in 1957 accounted for 59 per cent of the degrees, compared with 41 per cent awarded to students who enrolled in the college as freshmen. Transfers from junior colleges constitute approximately 70 per cent of the total transfer group.

5. Analysis of persistence of transfers at two colleges over a period of four semesters showed that only 39 and 49 per cent of the junior transfers received their degrees after completing four semesters. An additional 15 per cent at one college and 20 per cent at the second earned degrees in later semesters, giving an attrition rate of 46 per cent for one college and 31 per cent at the other. At a third college, it was found that 49.5 per cent of the transfers earned their degrees at or before the end of their fourth semester of study, and that 39 per cent withdrew without their degrees. Attrition for transfer students in the upper division is thus judged to be about as high as for freshmen in the first three semesters.

California Junior College studies (Master Plan 1960; and Stockton College, 1960)--Variation from the norm found in the Iffert study and elsewhere is expected for the California junior colleges, because of the nature of the program and the goals of the colleges. All high school graduates are eligible for admission to the junior colleges, and standards for

probation and disqualification tend to be more liberal than in the four-year colleges. New state-wide minimum standards of scholarship were recently adopted by the State Board of Education for continuance and dismissal. Two studies performed by junior colleges with freshman classes of 1000 and 710 students are cited as examples of research on persistence in the California junior colleges. No attempt has been made to generalize from the findings.

1. Sixty-one per cent of the entering students completed the freshman year, 46 per cent entered the sophomore year, and 35 per cent graduated within two years of admission. Of the drop-outs, 68 per cent were deemed justifiable and to the students' advantage.

2. Fifty-five per cent of the entering students completed the freshman year, 47 per cent completed three semesters, 40 per cent completed four semesters, and 25 per cent graduated. Of the nongraduates, 32 per cent withdrew without completing a semester, 19 per cent "ended" before completing four semesters, 17.5 per cent continued their education elsewhere, and six per cent were dismissed from the college.

Private college studies--A random check of individual studies from high-ranking private colleges shows wide divergence from Iffert's "private college-non-church related" norms, in the direction of a much higher graduation rate than Iffert's 50 per cent. Several hypotheses are suggested to account for the differences in findings. First, it appears that there may be considerable variance among private institutions in the percentage of graduates produced by the entering classes, even within the private college - non-church related category. Iffert does not show variance within any of the major categories of control, nor within other categories of institution except by type of program. It is probable that differences in attrition within categories are related to admission standards, size of enrollment, tuition, and other administrative as well as academic variables. Second, there undoubtedly has been a strengthening of selection standards in the private colleges since 1950, in order to control the size of enrollment and to reserve scarce spaces for the best students. Finally, it is possible that variance in private college attrition rates may be associated with the particular characteristics of these institutions which have not yet been studied. In any case, there does not appear to be a particular norm for attrition in private colleges, although a goal of less than ten per cent seems to be operationally feasible.

2. Autopsy-type Studies. A majority of the census-type studies are also concerned with reasons for withdrawal. The data are obtained by questionnaire or exit interview at the time of withdrawal, analysis of the student records produced during the period of residence, and/or questionnaire at some time after withdrawal. A general and fairly serious criticism which can be made of the autopsy-type study is that withdrawals

for clearly academic reasons, i.e., dismissal for poor scholarship, are not distinguished from voluntary withdrawals. If the student is dismissed for poor scholarship, the reasons he may give for withdrawing are only incidental, since he has had no choice. Furthermore, nearly all studies lack adequate information on transfers to other institutions or re-enrollment at the institution of original registration. Reasons for transfer or temporary withdrawal are in most cases not separated from those given by the "true" losses to higher education.

Again, the study by Iffert provides the major example of the group autopsy-type research. Questionnaires were sent out in 1953 to students registering as freshmen in 1950, to investigate reasons for going to college, reactions to college experiences, biographical information, reasons for transferring from the institution or original registration, and reasons for discontinuance. Some of the major findings of the questionnaire study are the following:

1. Reasons for going to college were classified as academic, occupational, personal-self, social service, and "traditional." Ratings given by students three years after registration were found to be unrelated to persistence in college.

2. Reasons for withdrawing from college were rated by students about as might be predicted for 1953, the time of the study. Men gave "military service" as the primary reason. However, "lack of interest" was given by 48 per cent of the men, followed by "personal financial difficulties," by 41 per cent. Women gave "marriage" as the chief reason for withdrawal (by 49 per cent), followed by "full-time employment" (37 per cent), and "personal financial difficulties" (36 per cent). "Lack of interest" was ranked as the fourth most important reason by the women, noted by one-third of them. Twenty-one per cent of the men and eight per cent of the women gave "dismissal" as an important reason for discontinuance, while 23 and 10.5 per cent, respectively, checked "probation" as an important reason. "College work too difficult" ranked sixth and seventh in importance in the 22 reasons listed by Iffert in the questionnaire.

3. Reactions to college experiences were purposely not included in the list of reasons for withdrawal which were judged by the students. Students gave ratings of degree of satisfaction with administrative and student personnel services, faculty and instructional services, and campus activities. Iffert found that ratings did not differentiate between the withdrawal and persisting groups. However, he inferred from the low ratings given some critical services by both groups that the withdrawal group was less able to tolerate the poor conditions than the group which persisted to graduation. Faculty services were rated lowest, including counseling, advising,

help on study techniques, and informal faculty contacts. Administrative services received the highest ratings, including opportunities for religious activities, student social activities, library, fraternities, housing, and loan services.

4. "General dissatisfaction" was rated highest as the reason for transferring from the institution of original registration by the group identified clearly as transfers. Change in curricular interests, desire to be nearer home, and desire for a less expensive institution were also cited as important reasons by the transfer group, but these latter reasons ranked far below "general dissatisfaction." The highest percentage of transfer students came from church-related institutions, not including the junior college data. Reasons were based in large part on recall, since 40 per cent of the transfers had withdrawn by the fall of the sophomore year and the questionnaire was distributed late in the third year. Percentages of students transferring, by type of program, ranged from 7.5 per cent for teachers' colleges to 13.4 per cent for liberal arts colleges.

5. Other variables included in the Iffert study are financial data, home location, college housing, activities, and program interest.

   (a) Median family income was found to be related significantly to persistence, but not to ability of the students. One-third of the early drop-outs had family incomes below $4,000 (in 1953), compared with 23 per cent of the graduates. Income varied with type of institution attended. Little relationship was found between persistence and student earnings, but the conditions of wartime enrollment of men may have obscured the relationship.

   (b) Little relationship was found between persistence and living at home vs. living on campus. Beyond the first semester, students away from home seemed to persist better, for a variety of reasons. Larger percentages of "college residents" graduated in the normal time, particularly among the male groups.

   (c) Fraternity-sorority membership was found to be related to persistence to graduation, both for individuals and institutions. The relationship was stronger for sororities than for fraternities.

   (d) Persistence was not found to be related to type or amount of organized extracurricular activity in which students participated.

(e) Program interest was found to be highly related to persistence. Occupationally oriented subject fields had the highest retention rates, e.g. engineering, physical education, agriculture, and business administration.

A major criticism of the Iffert study is the failure to examine the significance of variance associated with institutions. Review of the findings leads to the hypothesis that variance may be greater between institutions (and types of institutions) than between students in the persistence and withdrawal groups. Intra-institutional variance for many of the factors is predicted to be small, compared with variance among institutions particularly for the latter set of variables.

Some comparable findings are available from the other census-type studies already cited, as follows:

1. University of Iowa study -- no statistical relationship was found between a composite parental education rating and persistence, although students whose parents held at least the baccalaureate degree tended to persist in college. No relationship was found with father's occupation, nor with family income.

   A good relationship was found between persistence and certainty of vocational choice. Persistence for students with specific choices was 57 per cent, compared with 42 per cent for students who were highly uncertain. A high relationship with persistence was found with number of college years planned--the greater the number planned (including post-graduate work), the greater the persistence.

   Fifty-four per cent of the withdrawals had plans for further education at the time they were questionned; 23 per cent expected to re-enroll at the University of Iowa, while 30 per cent transferred (or expected to transfer) to other institutions.

2. Wisconsin study of the upper quarter students -- both students and the registrars of the colleges the students attended were queried concerning the reasons for withdrawal, with some differences in results. For the male withdrawals, registrars reported that 63 per cent had academic difficulty, although only 17 per cent of the men themselves checked this reason. Half of the males listed "financial" as the prime reason for withdrawal, although the registrars attributed this reason to only seven per cent of the withdrawals. Both registrars and students listed marriage as the prime reason for withdrawal among women students (44 per cent of the registrars and 61 per cent of the women). In addition, the

registrars reported that 28 per cent of the withdrawals among the women were in academic trouble, while only 17 per cent of the students checked this reason for withdrawal.

Father's education was found to be related to persistence for this college group. Where the father was a college graduate, persistence through four semesters was found to be 93 per cent. For students whose fathers were not even high school graduates, persistence dropped to 66 per cent Some relationship was also found with father's occupation, with lowest persistence for students with fathers in small business and farming.

3. Junior college studies -- Reasons for withdrawal without completing a program or course of study were reported as follows: employment in the field of study, 41 per cent; military service, 14 per cent; other reasons included parents moving from the district, transfer to senior institution, marriage, health, and finances. Some relationship was found with father's occupation, as follows: managerial class, 55 per cent graduated or continued their education; laboring class, high withdrawal (41 per cent) and low continuation of education; operative group, high percentage of students "ending" education in non-transfer programs, low withdrawal during the semester. Student choice of occupation was not found to be related to persistence.

4. State college studies -- a relatively high percentage of students withdrew during the semester, when academic difficulty seemed inescapable, in order to avoid receiving failing grades. The usual reasons were given for withdrawal: employment, financial problems, marriage, and illness. Transfer among colleges, including the junior colleges and the University of California, accounted for a sizeable percentage of withdrawals from the state colleges. Students transferred to the junior colleges to raise their grades or to enroll in two-year programs. Others transferred to the University to enroll in professional programs, live in dormitories, or undertake upper division work in particular fields.

3. Case-study Approach to Research. Case studies of withdrawals appear to fall generally outside the definition of institutional research, in terms of scope and methodology. In general, they are the concern of the admissions officers and counselors into whose hands the fate of students often falls. Special attention is given to probationary students (at entrance), doubtful risks, counseling cases, and others identified early as potential withdrawals. Results show that the clinical predictions made by these college officials are often more accurate than

chance (or statistical prediction), but the large proportion of misclassifications suggests caution in incorporating hunches into admissions criteria. On the other hand, results of case studies often have led to controlled studies and/or to better counseling.

4. Prediction studies from Academic Variables. Problems of selecting appropriate criterion measures are apparent from a survey of existing research on retention and withdrawal in which academic variables are studied. Among the various measures used are college grades (cumulative grade-point average for four years, cumulative grade-point average for as long as the student persists, first-semester grade-point average), graduation (in eight semesters or variable, at institution of first registration or after transfer, after continuous or interrupted attendance), scholarship status (clear, probation or warning, continued probation, dismissal, readmitted on probation), and condition of withdrawal (in good standing, failing, or without academic record). Studies in general have used only "persistence to normal graduation" and "withdrawal" as criterion groups, without further refinement.

High School Grades. Rank in class usually reduced to deciles or quarters, and high school grades are used in a number of persistence studies. Since a relationship has been found between high school performance and persistence in college in most of the studies conducted, a cursory review of the findings appears justified.

1. Iffert study --forty-nine per cent of the male graduates came from the top one-fifth of the high school graduating class, 26 per cent from the second-fifth, and 15 per cent from the middle fifth, for a total of 90 per cent from the top three-fifths of the class. Among the women graduates, 67 per cent came from the top fifth, 23 per cent from the second-fifth, and eight per cent from the middle fifth, for a total of 98 per cent from the top three-fifths of the high school class. The top fifth of the high school class was found to produce 42 per cent of the freshman enrollment, and only 32 per cent of the withdrawals.

2. University of Iowa study -- high school grade-point average was used as the predictor variable. The mean for the withdrawal group was found to be 2.53; for the persister group, 2.91. The difference was found to be statistically significant. Of the students earning averages of B plus or better, 78 per cent persisted; B to B plus, 61.5 per cent; C plus to B, 54 per cent; C to C plus, 45 per cent; D plus to C, 35 per cent; and below D plus, 15 per cent persisted. Eighty-three per cent of the graduates had earned an average of at least C in high school.

3. University of Wisconsin study -- the mean high school percentile rank in class, by semester of persistence, was found to be the following: eight semesters, 79: six semesters, 66;

four semesters, 62.5; three semesters, 58; two semesters, 62; one semester, 50. The mean percentile for the graduates was found to be 80, compared with an overall mean of 68.

4. University of California study -- Almost all freshmen admitted to the University earn a B average in high school in a rigorous college preparatory program. The high school differential for withdrawals with University grade-point averages above and below C was found to be equal to 0.2, on a scale with A equal to 4.0 and D equal to 1.0. While there is relatively little variance in the high school grades earned by University freshmen, variance in college grades is large. About 54 per cent of the withdrawals before the fourth semester earned University grade-point averages of C or better; 34 per cent were in "serious academic difficulty."

5. State College study -- when dismissals were separated from voluntary withdrawals, the high school record did not differentiate between the persistent group and the voluntary withdrawals. The graduating class was found to be somewhat more homogeneous than the freshman class with respect to the high school record, but mean grade-point averages from high school were about equal.

Aptitude Test Scores. Scores on the American Council on Education Psychological Examination or other tests of scholastic aptitude have generally been used in relating ability to persistence in the various studies reviewed. A relationship between test scores and persistence has been found in a majority of them.

1. Iffert study -- Among the graduates, 27 per cent of the men and 28 per cent of the women earned scores in the top fifth of the distribution, while only 17 and 12 per cent of the graduates earned scores in the bottom fifth of the distribution. While the overall distribution of scores for the entering freshmen was approximately rectangular, graduates tended to be drawn from the top two-fifths and withdrawals from the bottom groups. Relatively fewer withdrawals with high test scores were observed than withdrawals with high grade-point averages in high school.

2. University of Iowa study -- the mean test score for withdrawals was found to be 41.8; for the persisters, 57.5. The difference is statistically significant. From the top decile down through the seventh, for the test score distribution, approximately 70 per cent of the students persisted in college and 50 per cent earned their degrees on time. At the sixth decile, half of the students persisted and 38 per cent earned their degrees on time. From the fifth down through the third decile, about 45 per cent persisted and 30 per cent earned their degrees in the normal time.

3. University of Wisconsin study -- students who persisted through at least six semester earned mean scores with percentile ranks in the 50's, while students who persisted for only one semester earned mean scores with a percentile rank of 33. The mean for the total entering group was found to be 49, while the mean for students graduating in eight semesters was 59.

4. State College study -- voluntary withdrawals tended to come from the top and bottom quintiles of the test score distribution. Women with good high school records but poor test scores tended to drop out after the first year. Low test scores produced a large proportion of the dismissals for academic reasons.

5. Junior college study -- 78 per cent of the withdrawals earned test scores below the fiftieth percentile, on four-year college norms. Fewer withdrawals than expected occurred among students with scores above the 25th percentile, while more than expected occurred below the 25th percentile.

College Performance. Analyses have been made of college grades and probationary and dismissal status in relation to retention. However, the findings are confounded by the mixing of dismissals with voluntary withdrawals. Since strong relationships with persistence are reported, note should be taken of the findings.

1. University of Iowa study -- the mean cumulative grade-point average for withdrawals was found to be 1.84 (below C), while the mean for students persisting was 2.33 (the difference is significant). For the first semester, the means for withdrawals and "persisters" were found to be 1.78 and 2.40, while withdrawals before the junior year earned a mean grade-point average of 1.75. The percentage of students persisting was found to be highly related to the cumulative grade-point average, as follows: below C, 32 per cent persisted; C to C plus, 63 per cent persisted; C plus to B plus, 76 per cent persisted; B plus to A, 88.5 per cent persisted. Fifty-one per cent of the withdrawals did so in good academic standing; 24 per cent were on probation, 22 per cent were dismissed for academic reasons, and 3 per cent were dismissed for non-academic reasons.

2. University of Wisconsin study -- a high relationship was found between persistence and first-semester grade-point average, as follows: students persisting for eight semesters earned a mean average of 1.66 (C equal to 1.0 in this study); for six semesters, a mean of 1.26; for four semesters, a mean of 1.09; for two semesters, a mean of 0.71; and for one semester, a mean of 0.21. Of the withdrawal group, 50 per cent had some

scholastic action taken during their enrollment, compared with action taken for 22 per cent of the graduates. In the special study of students from the upper quarter of the high school class it was found that half of the students withdrawing from the University had failed to earn an average of C at the University. Furthermore, more than one-fourth of the group was in the bottom half of the University class.

3. Junior college study -- Twenty-three per cent of the junior college withdrawals, with ACE scores above the 50th percentile, earned a mean grade-point average of 1.60, below C. In all, 67.5 per cent of the withdrawals earned grades below C, and 46 per cent below D.

5. Evaluation of Existing Research on Retention and Withdrawal. The following observations are based on the studies of retention and withdrawal which have been reviewed in some detail. While the studies are very limited in number, they are judged to be typical and representative of the current studies in this area of investigation.

1. Attrition for all reasons is a serious problem, in view of increasing enrollments and shortages of college teachers and facilities.

   (a) Scholastic difficulties encountered by marginal students are not insignificant in causing attrition, but many capable students are leaving college with failing grades who should be succeeding.

   (b) In public institutions, stringent standards for selection do not appear to make any appreciable difference in attrition rates, or in time required to earn the degree.

   (c) Private control, high tuition, stringent selectivity, and small enrollments may all serve to produce lower attrition, but this is no solution to the needs of public education.

   (d) Increases in scholarship standards appear to help only slightly, and such actions are now under consideration in many institutions.

2. Current and past studies of retention and withdrawal are inadequate in many respects.

   (a) Census-type data are needed, but only as a baseline for evaluating experimentation leading to improvement in persistence rates.

(b) "Reasons for withdrawal" studies are generally acknowledged to be relatively meaningless, since "true" reasons are concealed in exit interviews and questionnaires, and remediation is difficult once the decision is made to withdraw.

(c) Dismissals are confounded with voluntary withdrawals, thus rendering meaningless or obvious many of the relationships found. When the two groups are separated, approaches to prediction, diagnosis, and remediation are different.

(d) "Breakthroughs" on the early identification and diagnosis of withdrawals can be cited in recent studies, but there appears to be a scarcity of research on remediation of withdrawal problems.

C. LEADS FOR NEW RESEARCH STUDIES, FROM CURRENT EXPLORATIONS, ATTITUDES, VALUES, AND BELIEFS

Students with particular configurations of beliefs, values, and personality characteristics appear to be more prone to fail and/or withdraw from college than others with different configurations, with the result that the persistent group is relatively homogeneous with respect to these characteristics. A number of exploratory studies are available for review, which provide leads for further research.

1. Use of the Inventory of Beliefs. A 100-item "Inventory of Beliefs" relating to ideas, social institutions, social groups, interpersonal relations and self-concept is discussed at some length in General Education -- Explorations in Evaluation (Dressel and Mayhew, 1957) and Methods in Personality Assessment (Stern, Stein, and Bloom, 1956). Three student groups have been differentiated by the inventory, two of which appear to differ with respect to rates of retention and withdrawal. The first group is labeled "Stereopath" and is characterized by authoritarianism, acceptance of authority as absolute, conformity in behavior, rigid orderliness, inhibition and denial of impulses. The second group is the "Non-stereopath" and is characterized by rejection of authority figures, non-conforming, flexibility in behavior, highly personalized social relationships, etc.

One study reported in Methods in Personality Assessment showed that extreme Stereopaths tend to withdraw from college, transfer, make poor adjustment to college, fail to seek needed help, etc. Twenty-three per cent dropped out of college, compared with only one per cent of the Non-stereopaths. Differences were also found between the two groups in instructor ratings, scholarship, and vocational preferences. Achievement in particular subject fields was also found to differentiate between the

two groups. However, there is a strong possibility that Non-stereopaths withdraw in greater numbers from some of our public institutions (the non-conformists, rejecters of authority figures, etc.). The research problem of greatest interest is thus to find out who succeeds in which institutions, and how can help be given to would-be withdrawals, either before admission to the institutions of their choice or during counseling-orientation periods.

2. The Allport-Vernon-Lindsey Scale of Values is being used in current studies in ways which appear to provide insights into the problem of voluntary withdrawals. Early analyses of scores have showed some interesting differences in profiles for various groups of students, in relation to the faculty profile. Preliminary results from a study now under way may be reported at the conference.

3. The Minnesota Multiphasic Inventory, scored for manifest anxiety, independence, and responsibility, has been used experimentally in studies of attrition. Findings are that persistent students are more responsible, more independent, and less anxious than withdrawals, particularly among the female group. Anxiety scores and attrition rates were found to go up together.

4. Biographical inventories which are locally constructed, including attitude items, have been used with some success in post admissions testing, where frank responses could be secured. Some items which have been included among strictly biographical questions, and which are designed to elicit responses related to motivation, are the following: estimates of attrition (nationally) in the professional program in which the students are enrolled; rating of importance (to self) of completing the program; rating of importance which the family attaches to the student's completing the program; family influence in choice of profession; expected four-year grade-point average, in total class distribution; rating of chances of completing program; indication of point at which the student feels he "has it made."

A nine-page inventory of this type was used experimentally in a study of retention and withdrawal in schools of medicine and dentistry. Potential withdrawals were identified fairly readily by the attitude items, many of whom did in fact withdraw during the first year. Students with weak motivation, uncertainty of choice of profession, insecurity concerning adequacy of preparation, and unrealistic goals are identified by this self-report procedure in the post-admissions testing. If the testing were moved back to the pre-admissions screening process, it is unlikely that frank answers would be obtained. Students have in common the motivation to be admitted to the program. Beyond admission, some have motivation to achieve the degree, but not for the hard work involved; some are motivated to please their parents, but not to achieve for their own satisfaction; some wish to save humanity through medicine or other professions, but are not motivated to learn the more down-to-earth skills and knowledges.

Other problems of motivation and adjustment which may be uncovered by biographical inventories include those related to unrealistic motivation to achieve in college. Examples are students with outstanding high school records who attend colleges which select the entire freshman class from the upper ten per cent; students who were outstanding leaders and/or athletes in small high schools, who are lost in a large university freshman class.

Institutional or Organizational Characteristics Related to Retention and Withdrawal. A major gap in Iffert's study of 147 institutions results from his failure to assess the extent to which variance in retention is associated with institutions, rather than individuals. Problems of remediation are different, depending upon the sources of variance -- do we counsel students in the hope of changing behavior, change institutional policies and practices, and/or revise procedures for selecting students?

An unpublished study performed for the Air Force demonstrates the need for examining organizational variance associated with retention and withdrawal. The usual census-type studies, accompanied by analyses of reasons and causes, had been performed in the various commands and sectors of the Air Force, with no usable results. Studies of airman characteristics related to retention showed only that the "persister" was one who had re-enlisted after his initial tour of duty, was older, married, held higher rank, etc. The findings were thus similar to those from college studies of retention -- if the student can be held beyond the first term or year, he is a good candidate to persist. A study was then undertaken to assess the significance of variance in reenlistment rates associated with group or organizational factors. Tests were made for the significance of variance by base, command, mission, Air Force specialty, and organizational unit. "Group" rates were found to be highly reliable over time, and differences between rates for the various types of groups were found to be statistically significant in all cases.

From these findings came a study of the factors of administration, supervision, and work requirements, as well as facilities and services, in an attempt to improve conditions favoring reenlistment (or persistence). Airman ratings of and opinions about local policies and conditions were obtained, as one step in initiating changes, with attention focused on comparisons of bases with high and low persistence rates on the various factors studied.

Another promising lead for the suudy of institutional characteristics related to retention and withdrawal is the use of the College Characteristics Index constructed by Pace and Stern, (1958 (b)) in analyzing the institutional variance associated with retention rates. Thirty 10-item scales are derived from the index, corresponding to the environmental press counterparts of 30 personality needs taken originally from Henry Murray's (1938) classification, and used by Stern in his Activities Index (1958). Five clusters of institutional variables have been

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identified in previous studies -- Humanistic, Scientific, Practical-Status Oriented, Human Relations - Group Welfare, and Rebelliousness. The relating of the 30 scales to retention rates, over institutions and for individuals within institutions, should produce insights into institutional variance associated with persistence. Studies of the Index have shown that variance in scores between institutions is significantly larger than within-institution variance. It is possible that reliable variance will be found by types of institutions, programs within institutions, etc.

Uses for such study results are several: the pre-admissions advising program, for a realistic picture of the "educational press" characterizing the particular institution to which the applicant seeks admission; modification of policies or practices leading to high (or low) institutional scores on scales related to retention rates; preventive counseling programs for students who persistence is likely to be adversely affected by the particular educational press; early identification of students with unrealistic concepts of the educational press of the institution he has chosen to attend.

D. NEEDED RESEARCH BY INDIVIDUAL COLLEGES

A philosophical framework which has been agreed upon by both faculty and administration is sorely needed, in order to evaluate research on retention and withdrawal performed by any particular institution. In developing such a framework, the following kinds of questions need to be answered frankly and fully:

1. Can the college "afford" to admit students whose objectives will be met with less than a four-year degree program; e.g., girls who marry and withdraw after one year; students who seek away-from-home dormitory experience for a year or two; students seeking "some college training," without degree motivation; men who withdraw for military service or employment after a year or two; financially shaky students who will be in and out of college for six years or more?

2. Does the faculty feel that a certain percentage of dismissals or probationary cases for academic reasons is "healthy," regardless of the rigorousness of selection procedures? Is the percentage fixed or variable, depending upon the quality of students?

3. How does the college regard the first semester of the freshman year -- as a rough, do-it-yourself proving ground, followed by immediate dismissal of those who can't make it? or as period of difficult adjustment for the students, some of whom will require a year or more to find themselves?

4. Does the college believe that the students must do the adjusting, in terms of the educational press, or is the college willing to examine its policies and practices critically and objectively, as a part of its self-analysis? Should selection procedures screen out the probable withdrawals, in terms of predicted poor adjustment to the particular college environment? If not, should likely withdrawals have help proffered them, before they encounter trouble? Or, should students fend for themselves after admission?

5. What is a reasonable retention rate for the college to try to achieve, in terms of goals, program, selection procedures, etc.? How can the college take steps to achieve this rate?

A second critical need for each college to meet in planning research on retention is the development of a classification system for withdrawals. The current lumping of withdrawals for all reasons may be obscuring relationships with non-academic variables, while producing spurious relationships with high school grades and test scores. As a start, the following classification is suggested:

1. Academic dismissals who "deserve" to fail, from the marginal group which would be eliminated under higher admission standards;

2. Academic dismissals whose prognosis was good -- good high school record, satisfactory test scores, normal adjustment, etc.;

3. Voluntary withdrawals for reasons compatible with the college's goals, e.g., completion of short-term programs, placement in jobs, marriage, etc.;

4. Voluntary withdrawals for reasons of dissatisfaction or poor adjustment, constituting a loss to the college and to society;

5. Transfers to other collegiate institutions in good standing, to continue normal programs;

6. Temporary withdrawals, resulting in slowed progress toward the degree, for reasons of finance, health, etc.

A third area of investigation by individual college, which is more in the nature of research than the first two areas, is the development of techniques for the early identification of potential withdrawals. Some leads are provided again by exploratory research on attrition in the Air Force advanced flying training program. It was found that when overt behavior associated with the decision to drop out occurred, it was too late for remediation. In other words, the student's taking his application to withdraw to proper authorities represents the last, final step in a long sequence of behavior. The

decision to withdraw is made before school authorities are consulted, and seldom can it be reversed by counseling, change in program, relief from environmental factors, etc. The problem, then, is one of developing techniques for measuring symptoms of behavior leading to drop-out, before the student makes the irrevocable decision. The real reason for withdrawal from the Air Force program was often fear of flying, disenchantment with pilot status, family problems, etc., but symptoms appeared early as extremely low ratings of food service, recreational facilities, local administrative policies of the irksome sort, and other environmental factors. Use of simple rating scales for base facilities and services uncovered potential withdrawals from the program, in time to give counseling or other assistance before the final decision was made regarding withdrawal.

Group survey techniques are needed to chart events and conditions leading to withdrawals, to learn times during the semester when pressures are building up in the student body -- pressures which withdrawal-prone students are least able to resist. We also need to know peak times for withdrawal applications during the semester, in relation to pressures. With a dormitory system, the use of survey techniques over a period of time is easier to accomplish. With a commuter college, contacts with students are less easy to achieve. However, there is usually some course in psychology or orientation for freshmen in which all new students enroll. It is suggested that the group survey might include ratings of housekeeping services (food and housing), student personnel services (activities, counseling, student placement), instructional services (library, advising, study help), and faculty (teaching, grading, workload).

Charting of points of high and low morale can be useful to the college in planning a counterattack on the withdrawal problem, either for the whole student body or for students identified as potential withdrawals. Possible actions include the massing of counseling resources at critical times, scheduling of faculty advising periods, moratorium on home work assignments, group therapy sessions, etc.

Individual identification studies which should be carried out simultaneously with group survey studies are the following:

1. Increased study of the use of post-admissions biographical inventories, with self-appraisal items; application of existing techniques for homogeneous keying of inventory items to obtain scales which can be related to retention;

2. Rating studies of expected persistence of new students at the time of admission and initial registration, by admissions officers, faculty advisers, counselors, housemothers, college physicians, etc., in order to find out how well the admissions-orientation team can predict freshman attrition in the various categories of drop-out;

3. Experimental use of inventories of values, beliefs, and attitudes as part of placement testing, to identify students with extreme profiles of scores who may experience difficulty in adjustment to the college environment and/or in changing or maturing.

Experimental studies of remediation techniques need to accompany the early identification of potential drop-outs, to find out if withdrawal rates in the various categories can be reduced by early identification and remediation. Priorities might be given to the various categories of withdrawal, for action research pointing to remediation. If the "predictable" failures and withdrawals for "acceptable" reasons are ignored, priority might be given to the following:

1. Failures who should have succeeded: an analysis of the characteristics of this group is needed, to secure leads to remediation. Some rather obvious leads are uneven profiles of test scores or grades for students with satisfactory general ability (problems with reading speed, notetaking, spelling, etc.); uncertainty bordering on anxiousness concerning occupational goals; unrealistic load of outside employment in relation to course load; poor living arrangements.

2. High ability voluntary withdrawals: students with expressed dissatisfaction or lack of interest often characterize this group. Can special counseling, planned faculty contacts, honors programs at entrance, or aid-to-other students programs reduce withdrawal in this category of students?

3. Transfers and temporary withdrawals: withdrawals in these categories may be unpredictable, but can the number be reduced at the time of application for withdrawal by allowing special arrangement of courses, approving a loan application, etc.?

4. Voluntary withdrawals from the middle ability group: can predictions be made from the value-interest measures? If so, can these students be matched with faculty advisers with similar profiles? Can they be programmed in special sections or courses to ease adjustment to college?

Summary of Need for Local Studies. The following types of investigations are suggested as necessary for the individual colleges seeking to understand and control retention and withdrawal:

1. Securing of normative data to establish a baseline for retention and withdrawal;

2. Development of a philosophy of retention and withdrawal;

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3. Classification of withdrawals as voluntary/involuntary, remedial/non-remedial, temporary/permanent, loss/gain, etc.;

4. Institutional self-analysis, in terms of (a) educational press and (b) student evaluation of facilities and services;

5. Study of techniques for the early identification of potential withdrawals;

6. Action research program for the remediation of various categories of withdrawal.

E. NEEDED INTER-INSTITUTIONAL RESEARCH

A repetition of the Iffert study appears to be needed, with major attention given to institutional variance associated with retention and withdrawal rates. A new study should include the following changes or additions:

1. Refinement of "withdrawal" group to eliminate dismissals and predicted graduates, as a minimum (the alternative is to use the "graduation in eight semesters" group only);

2. Inclusion of institutional variables from Pace's College Characteristics Index or similar instrument; use of institutional ratings (if reliable) of other variables included by Iffert (ratings of facilities, services, instruction), income variables, other administrative-control variables;

3. Special junior college analysis, perhaps for California junior colleges alone.

Second, a study is needed of the effect of various policies for academic probation and disqualification on voluntary withdrawal rates, particularly in relation to freshman attrition.

Finally, a major cooperative study of retention, withdrawal, and transfer is needed in the three major segments of higher education--junior colleges, state colleges, and the university -- which will involve a long-range follow-up of students seeking the baccalaureate degree. Groups in the three types of institutions should be matched for eligibility for admission to two or more segments of higher education;

living arrangements -- at home, away from home but non-college residence, and dormitory; family income; field of study; sex; age and maturation level; and value patterns. The study would be designed to answer the question of whether certain identifiable groups of students would persist in larger numbers to the baccalaureate degree if they remained at home in a community college for lower division work, with smaller classes, more counseling, classroom-oriented teachers not unlike those encountered in high school, with less independent study, less academic competition, less radical changes in behavior expected, etc.

As competition increases for places in entering classes in senior institutions, it becomes increasingly important that we admit students who not only can but also will complete programs which are the primary mission of the college.